AMENDMENTS TO THE SPECIFICATION:

Please amend the specification as follows:

Please amend the paragraph beginning on page 1, line 20, as follows:

-- A conventional electron beam exposure method includes a single-beam Gaussian method and a variable forming method. --

Please amend the paragraph beginning on page 3, line 18, and ending on page 4, line 6, as follows:

-- This electron beam exposure apparatus uses a three-pole-structure electron gun which uses single-crystal boron hexafluoride (LaB_6) to form a cathode electrode. The emission current of the cathode electrode is 100 μA to 200 μA, and several μA [[is]] are extracted from the beam current and [[is]] are used as an electron beam that contributes to exposure. Hence, most of the emission current is shielded by a shielding electrode portion on the way. In the example of the conventional electron gun, as the total energy of the electron beam when the acceleration voltage is 50 kV is comparatively as small as 5 mW to 10 mW, substantially no heat is generated by shielding the electron beam. Therefore, most of the energy of the electron beam is dissipated in the column, and forced cooling is not accordingly performed. --

Please amend the paragraph beginning on page 5, line 2, as follows:

-- The electron gun is used with a high voltage of 50 kV or more. Therefore, the scattering electrons and secondary electrons generated when the emission electrons irradiate the anode electrode 203 scatter in the acceleration space of the electron gun. This causes weak discharge. --

Please amend the paragraph beginning on page 10, line 17, and ending on page 11, line 13, as follows:

-- Fig. 1 shows the arrangement of an electron gun as a typical embodiment of the present invention that realizes high throughput as described above. The electron gun includes a cathode electrode 1, a bias electrode 2, an anode electrode 3, and a cooling unit 10 comprised of a shielding electrode 11 and a cooling portion 14. The cathode electrode 1 is made of boron hexafluoride (LaB_6), has a cathode temperature of 1,540°C, and is applied with a voltage of 50 kV. A voltage that matches the brightness characteristics is selected from a range of several hundred V to 1 kV, and is applied to the bias electrode 2. The top surface of the cathode electrode 1 is semispherical. Electrons emitted from the top surface of the cathode electrode 1 pass through the aperture 6 of the bias electrode 2, form a cross over CO between the bias electrode 2 and anode electrode 3, and further pass through an aperture 7 without irradiating the anode electrode 3, to become incident on the shielding electrode 11 after the aperture 7. The

shielding electrode 11 has a structure for shielding an electron beam EB2 unnecessary for electron beam exposure. Only an electron beam EB1 to be used for exposing a wafer 106 passes through an aperture 13. --

Please amend the paragraph beginning on page 12, line 24, and ending on page 13, line 17, as follows:

-- Fig. 2 shows an example in which a shielding electrode 11 and cooling portion 14 are separably formed. To form the shielding electrode 11, a high-melting material such as W, Mo, or Ta can be used. Alternatively, a material made of a light element (e.g., graphite or boron nitride) having low scattering efficiency against incident electrons may be selected. To form the cooling portion 14, a metal material having high thermal conductivity such as Cu, Al, Fe, or Ti is used. Heat resistance occurs at a contact portion 15 of the shielding electrode 11 and cooling portion 14, making it difficult to cool the shielding electrode 11 efficiently. In view of this, a metal material (e.g., In, Ga, Pb, or a low-melting alloy) having a lower melting point than that of the shielding electrode 11 is interposed before the contact portion 15, so that the heat resistance is decreased, and that the cooling efficiency of the shielding electrode 11 is increased accordingly. Apart from this, the same elements as in Fig. 1 are denoted by the same reference numerals, and a description thereof will be omitted. --

Please amend the paragraph beginning on page 14, line 3, as follows:

-- Fig. 4 shows an arrangement in which an insulator 16 is arranged under a cooling portion 14, and insulating pure water or ~~Freon~~ Freon® is used as a cooling medium that cools the cooling portion 14. The current which becomes incident on a shielding electrode 11 can be detected by a current detector 34. The amount of electrons becoming incident on an anode electrode 3 can be detected by a current detector 33. --

Please amend the paragraph beginning on page 16, line 21, and ending on page 17, line 17, as follows:

-- Fig. 10 shows the flow of the manufacture of a microdevice (e.g., a semiconductor chip such as an IC or LSI, a liquid crystal panel, a CCD, a thin-film magnetic head, or a micromachine). In step S21 (circuit design), a semiconductor device circuit is designed. In step S22 (exposure control data creation), exposure control data for an exposure apparatus is created on the basis of the designed circuit pattern. In step S23 (wafer manufacture), a wafer is manufactured by using a material such as silicon. In step S24 (wafer process), called a preprocess, an actual circuit is formed on the wafer by lithography using the wafer and the exposure apparatus, into which the prepared exposure control data is entered onto the mask. Step S25 (assembly), called a post-process, is the step of forming a semiconductor chip by using the wafer formed in step S24, and includes an assembly process (dicing and bonding) and a packaging process (chip encapsulation). In step S26 (inspection), the semiconductor device

manufactured in step S25 undergoes inspections such as an operation confirmation test and a durability test. After these steps, the semiconductor device is completed and shipped (step S27). --

Please amend the paragraph beginning on page 18, line 12, as follows:

-- As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the ~~inventions~~ invention is not limited to the specific embodiments thereof except as defined in the appended claims. --